

**Southeast Texas Edition** 

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# (PREPARED)

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### TEXAS DEPARTMENT OF PUBLIC SAFETY

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### Dear Colleagues,

Hurricanes can be devastating to coastal areas, with powerful impacts from storm surge, high winds, tornadoes, and flooding. It is imperative to prepare for each type of hurricane hazard. Advanced planning and preparation are essential to protecting property, reducing risk and ultimately saving lives.

For these reasons, your local National Weather Service, the Division of Emergency Management of the Texas Department of Public Safety, and other key partners, urge residents of coastal communities to read and study this comprehensive Hurricane Guide.

Thousands of individuals in local, state and federal agencies, as well as voluntary organizations and the private sector, are deeply committed to keeping Texans safe when tropical storms threaten our coastal areas. But we need your help as well.

It is critical for coastal residents to take time to develop a family disaster plan, to review emergency preparations and checklists regularly, to build disaster supply kits in waterproof, easy-to-carry containers, and to stay aware of current weather situations by monitoring NOAA weather radio and local broadcasts.

The Official Texas Hurricane Guide is a roadmap that provides information on the supplies you will need and the actions you should be prepared to take as a storm moves in. It is intended as a user-friendly resource with specific instructions for what to do each step of the way – before, during, and after the storm. It also provides information on ways to improve protection for your home and property.

Please use this guide to learn as much as possible about how to prepare for our most dangerous storms. I hope you will continue your dedicated support of this key initiative.

Sincerely

W. Nim Kidd, CEM®

Assistant Director

Texas Department of Public Safety

Chief

Texas Division of Emergency Management

EQUAL OPPORTUNITY EMPLOYER
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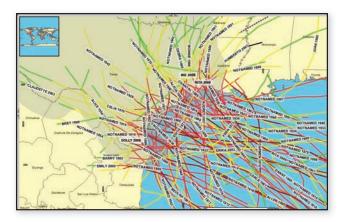
# **About Hurricanes**



ocean waters, like those found in the Gulf of Mexico. The hurricane season starts June 1 and ends November 30. The peak threat for the Texas coast exists from August through September. However, hurricanes can and have struck the Texas coast during every month of the hurricane season.

Hurricanes form over warm

Above: High resolution satellite image of Hurricane Ike over the northwest Gulf of Mexico. Image--NASA



Above: Historical perspective of hurricane landfalls in Texas since 1851.

# Since 1851, 63 hurricanes have struck the Texas coast. That is one every three years on average.

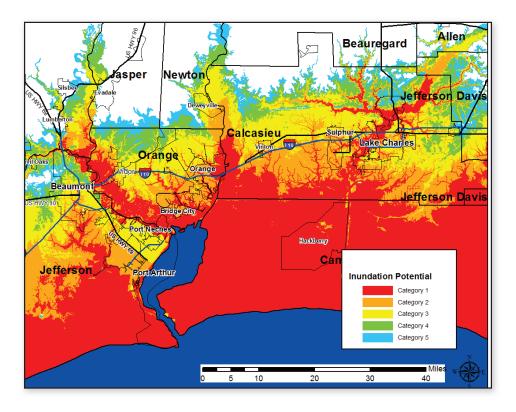
Storm surge is a large dome of water, 50 to 100 miles wide that sweeps across the coastline along and to the right of where the eye makes landfall. The stronger the hurricane winds, the higher the storm surge. The storm surge can be more than 15 feet in major hurricanes. Storm surge poses the greatest threat to life and property for coastal communities.



Above: Home flooded by the storm surge from Hurricane Ike in Bridge City, TX. -- TX DPS



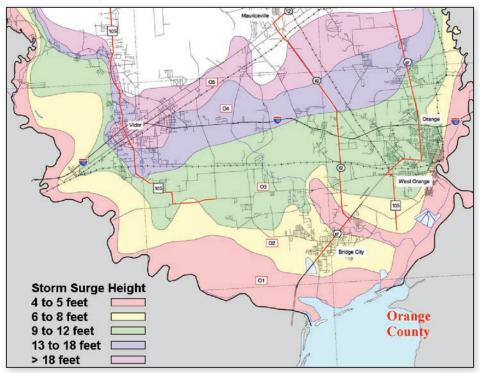
Above: Home destroyed by storm surge from Hurricane Ike near Caplen, TX.



"The greatest potential for loss of life related to a hurricane is from the storm surge."

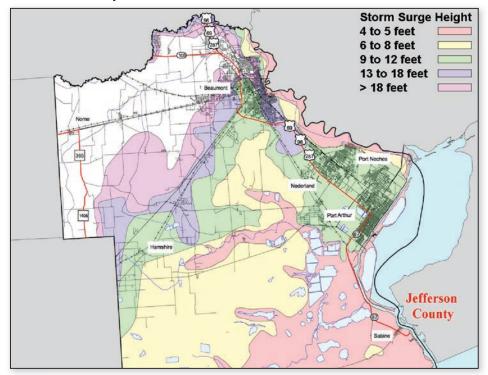
- National Hurricane Center

# **Orange County**



These risk area maps show the potential inland penetration of wind and water. Areas located along the immediate coast in the orange and yellow colors are in greatest danger; and are susceptible to storm surges of as little as 4 feet.

# **Jefferson County**



# **Inland Flooding**

There are numerous examples of significant flooding caused by land-falling tropical cyclones in Texas. Storms with a slow forward motion are the most dangerous as heavy rains persist for a longer period of time.

# Five Practical Ways to Protect Yourself and Others From the Dangers of Inland Flooding

# Protect Your Personal Documents and Special Items

- Store valuables in plastic tubs with locking tops
- In case of evacuation, you should be able to secure and move all your valuables within 15 minutes

# Buy Flood Insurance: A Plan for Replaceable Items

- The National Flood Insurance Program (NFIP) is available from an insurance agent or the NFIP
- For more information see www.floodsmart.gov

# Flood Proof Your Home - Take Steps to Minimize Flood Damage

- Shut off the main circuit breaker to prevent short circuiting and eliminate the threat of electrocution
- Raise outside air conditioning units onto platforms above ground level
- Store rarely used or expensive items in the attic or on high shelves

# **Develop a Family Flood Plan**

- Develop a plan of action to keep from panicking during an emergency
- Have an evacuation route and alternatives planned in the event you are asked to evacuate
- Communicate your plans with friends or family outside of your home area
- Battery powered radios or televisions can be used in the event of a power outage

### Never Drive on Flooded Roads

- Driving into flooded roadways puts your life and the lives of others at risk
- Unless told to evacuate, you are probably safest staying at your current location
- If you encounter flood waters when driving, Turn Around, Don't Drown!



**Turn** 

Around

Don't

**Drown®** 

# **Tornadoes and Destructive Winds**

Tropical cyclones also produce tornadoes. These tornadoes most often occur in thunderstorms embedded in rain bands well away from the center of the hurricane; however, they can also occur near the eyewall. Tornadoes produced by tropical cyclones are relatively weak and short-lived, but still pose a threat.

Hurricane force winds of 74 mph or more can destroy buildings, mobile homes, trees and power poles. Debris such as signs, roofing material, siding, and small items left outside become flying missiles in a hurricane. The strongest winds occur in a region of the hurricane called the eyewall. Wind gusts in the right side of the eyewall are the most destructive. Hurricane force winds can be felt as far as 150 miles from the coast.



Above: Wind damage to a billboard from Hurricane Lili in October 2002.



# **MOBILE HOME RESIDENTS MUST EVACUATE!**

- No mobile home or manufactured home no matter how new it is - can provide safe shelter from hurricane force winds.
- Straps or other tie-downs will not protect a mobile home from the high winds associated with a hurricane.
- Mobile home residents must evacuate when told to do so by local authorities.

# Saffir Simpson Hurricane Wind Scale

- Category 1 Winds 74 to 95 mph
- Category 2 Winds 96 to 110 mph
- Category 3 Winds 111 to 129 mph
- Category 4 Winds 130 to 156 mph
- Category 5 Winds 157 mph or higher

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# **Hurricane Preparation**

# **Home Preparation**

### **Elevation Matters**

 Know the elevation of your home! Are you in a flood and/or evacuation zone?

### **Mobile Homes**

- Check tie-downs for rust or breakage.
- Residents of mobile homes must evacuate when told to do so!!

### Landscaping

- Trim trees, shrubbery and dead limbs, especially ones close to your home.
- Repair or replace broken or damaged fences.



- Inspect the roof for loose tiles, shingles or debris. Consider replacing old or damaged shingles with new ones rated for hurricane force winds.
- · Clear loose and clogged rain gutters and downspouts.

### Doors

- Reinforce garage doors and tracks or replace with a hurricane tested door.
- · Reinforce double entry doors with heavy duty foot and head bolts.
- Use a security dead bolt with a one inch minimum bolt length.

### Windows

- If possible, install tested/manufactured hurricane shutters.
- Inspect existing shutters to ensure they are in good working order.
- Alternative: Use 5/8" or greater exterior grade plywood secured by 2 1/2" screws and/ or special clips. Obtain wood and fasteners, cut wood to size, pre-drill holes and place anchors on homes.



# **Additional Preparation**

# **Business and Employee Preparation**

- · Identify and protect vital records. Backup and store key files off site.
- · Protect electronic equipment from possible water damage.
- Have extra cash and blank checks in case extra money is needed after the storm.
- Develop a 24-hour emergency contact with phone numbers of key employees.
- Set up telephone numbers for employees to check in and receive company information.
- Establish a temporary location for business operations in case your facility is damaged.
- · Give employees enough time to secure their homes and families.
- Consider paying employees before they leave to prepare their homes.

### **Marine Preparations**

- Check with the manufacturer for proper ways to secure your boat during a storm.
- Purchase necessary hurricane materials such as additional mooring lines, crew anchors, fenders, fender boards, chafing gear, and anchors.
- Safe storm moorings should consist of good condition ropes of sufficient diameter and length, with at least three or four substantial anchor points.
- Do not moor parallel to bank. Receding tides often capsize boats in this type of anchorage.

# **Preparing for Your Pet's Safety**

Your pet should be part of your overall hurricane preparation plans. Below are a few important things to help you prepare:

- Make sure your pet's vaccinations are current and have proof they are current. DO NOT
  assume that a public shelter or hotel will accept your pet.
- Be sure to have a current photo of your pet.
- Each animal should have a properly sized pet carrier. The carrier should be large enough
  for the animal to stand up and turn around.
- Pack enough food and bottled water for the duration of your evacuation. DO NOT let your pet eat food or drink water from outside that may have become contaminated.
- Be sure to pack all medications your pet may need along with a muzzle, collar, leash, paper towels, and trash bags.
- · Make sure your pet has a proper ID collar.

# **Additional Preparation**

# **General Preparations for People with Special Needs**

Preparation in advance of hurricane season is essential, especially for people with special needs. It is essential that a destination is identified ahead of time that can accommodate people with special needs. Shelters should be considered as a last resort when people with special needs evacuate because many shelters cannot provide the attention required. Assisting elderly neighbors and acquaintances with pre-hurricane preparations is encouraged.



# **Important Special Needs Tips**

- Identify with whom you will stay in the event an evacuation becomes necessary.
- Make arrangements for transportation in the event you evacuate. Make sure your transportation can accommodate any equipment or other supplies that need to be taken with you.
- Make sure you have the following items that should be stored in advance:
  - ☑ Extra copies of your prescriptions in case your physician's office is damaged and not operational.
  - ☑ At least a 1 month supply of medications.
  - ✓ Identification.

# Transportation Assistance Registry (Dial 2-1-1 as soon as possible...)

- Before the start of hurricane season (June 1)
- If you have a disability or special health care need and require assistance to get out
- If you cannot drive and cannot arrange transportation
- If you do not have a vehicle and you have no one else to help you evacuate

# Is someone going to pick me up or call me when a hurricane threatens?

Emergency evacuations are handled different in every community. When a major hurricane threatens, local emergency managers will make every attempt to evacuate someone who does not have the ability to evacuate themselves, if there is enough time to do so safely. Once a hurricane enters the Gulf, individuals should pay close attention to local media to determine when and how evacuations will occur.

# **Insurance Tips**

### **Before the Storm**

- New and existing policies will not be written or modified when a storm nears the Gulf of Mexico.
- Make sure you fully understand what perils are covered and excluded in your policy.
- Make sure your coverage is adequate to replace your home and contents in today's dollar.
- Determine whether your policy covers additional living expenses for a temporary residence if you are unable to live in your home because of damage from a disaster.
- Before hurricane season, prepare detailed written and/or photographic inventory of your home's contents and store it in a safe place with your policy.
- If your insurance company does not cover flood or windstorm perils, ask about coverage through the Texas Windstorm Insurance Association or the National Flood Insurance Program.

### After the Storm

- Give prompt written notice to your insurance company.
- Photograph or videotape damaged structures and all damaged property. Make a list of damaged or lost items.
- DO NOT throw out damaged property before your adjuster has inspected the debris unless it is a health hazard or impedes local cleanup.
- · Protect your property from further damage.
- Keep an accurate record of temporary repair and living expenses if a loss of use is suffered.

# Important Online Insurance Information

- National Flood Insurance Program www.floodsmart.gov
- Texas Windstorm Insurance Association www.twia.org
- Texas Department of Insurance www.tdi.state.tx.us/consumer
   1-800-252-3539 (Consumer Help Line)

# **Contact Info and Supplies**

Your local Texas Chapter of the American Red Cross recommends that you have the following items in your Hurricane Supply Kit. Do not forget to have a family meeting before hurricane season and review your communication information and evacuation plan. Make sure the contact information such as home, work, school, cell phone numbers, and your "Out of Town" contact person's information is current.



# **Emergency Contact Information**

Out of Town Contact Address:
Out of Town Contact Phone Number:
Work Telephone Number:
Cell Number/Spouse Cell Number:
Children Cell Number:
School Telephone Number:
Doctor Telephone Number:
Bank/Credit Card Telephone Number:
Insurance Company Information:

# **Hurricane Supply Kit**

# Your chapter of the American Red Cross recommends that you have the following items in your Hurricane Supply Kit.

- At least a 7-day supply of non-perishable food and water. One gallon of water per person per day is recommended
- Battery powered portable television or radio with extra batteries
- · Flashlight with extra batteries
- · First Aid kit and manual
- Sanitation and hygiene items such as instant hand sanitizing gel, moist towelettes, toilet paper, and feminine hygiene products
- Whistle
- · Kitchen accessories, cooking utensils, and manual can opener
- Cash
- Extra clothing, blankets, and sleeping bags
- Matches in a waterproof container
- Photocopies of identification, insurance, prescriptions, household inventory, credit cards, and your latest utility bill
- CD or photocopies of important documents such as birth/marriage certificates and titles
- · Prescription medications, eyeglasses, contact lens solution, and hearing aid batteries
- Formula, baby food, diapers, and pacifiers
- Pet carriers, leashes, shot records, and food for each animal evacuating with you
- A good map showing county roads and highways
- · Tire repair kit, booster cables, pump, and flares
- · White distress flag
- · Toys and games for children
- · List of family phone numbers and addresses outside the area

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# **Hurricane Names**

# Hurricane Names

# 2012

Alberto	Leslie
■ Beryl	Michael
☐ Chris	Nadine
Debby	Oscar
☐ Ernesto	Patty
☐ Florence	□ Rafael
☐ Gordon	Sandy
☐ Helene	☐ Tony
☐ Isaac	■ Valerie
Joyce	William

# 2013

☐ Kirk

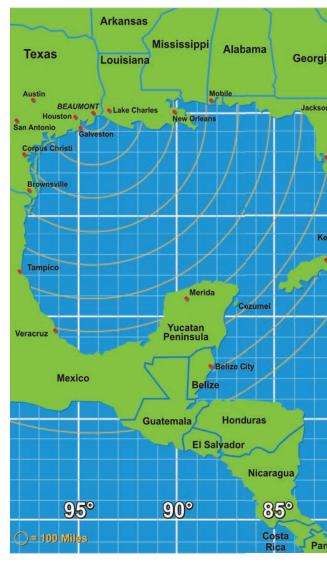
☐ Andrea	☐ Lorenzo
□ Barry	Melissa
☐ Chantal	■ Nestor
Dorian	🗖 Olga
☐ Erin	☐ Pablo
☐ Fernand	Rebekah
☐ Gabrielle	Sebastien
☐ Humberto	Tanya
☐ Ingrid	Van
Jerry	Wendy

<b>□</b> Karen	
20	14
Arthur	☐ Laura
Bertha	■ Marco
Cristobal	□ Nana
☐ Dolly	Omar
Edouard	Paulette
☐ Fay	☐ Rene
☐ Gonzalo	☐ Sally
Hanna	☐ Teddy
Isaias	☐ Vicky

☐ Josephine

☐ Kyle

☐ Wilfred



This chart is marked with vertical (longitude) and horizontal (latidtude) line Follow it up where it intersects with the

**Stay Connected:** 



# **Hurricane Tracking Map**



s, each representing 1 degree. A storm's position is given in these degress. Find the given longitudinal number at the bottom of the chart. given latitudinal line. Place a mark on the intersection point (this is the hurricane's current position).



# **Hurricane Forecast**

# Weather Information

- National Weather Service weather.gov/lch 24 Hour Phone Recording: (334) 477-5285
- National Hurricane Center www.hurricanes.gov

The National Hurricane Center (NHC) in Miami, FL is the official source for tropical cyclone advisories and forecasts and is responsible for issuing tropical cyclone watches and warnings for the United States.



# **Graphical Tropical Weather Outlook**

 NHC product provides an overview of all tropical cyclone activity, indicates areas of interest that have potential for tropical cyclone development.

# **NHC Forecast Advisory**

- Most recent position for a storm along with all coastline watches and warnings. Includes a 3 or 5 day track with error cone.
- Error cone represents a 5 year average error. Storms only stay within the error cone 67% of the time.
- DO NOT focus too closely on the exact track forecast the little black line.

# **Storm Wind Field Graphic**

 This graphic illustrates the size and shape of the tropical cyclone wind field.

# **Graphical Hurricane Local Statement (HLS)**

- Issued by local NWS offices to summarize local impacts expected from the tropical cyclone.
- A text version of the Hurricane Local Statement is also available from your local NWS office which provides more detailed information on the tropical cyclone's local impacts.

# **Final Checklists**

### Actions to Take When a Storm is in the Gulf

- Listen frequently to radio, TV, or NOAA weather radio for bulletins and forecasts of the storm's progress.
- · Double check items in your emergency supply kit.
- · Fuel and service your vehicles.
- · Inspect and secure mobile home tie-downs.
- Board up windows (if shutters do not exist) in case storm moves quickly and you have to leave!
   TAPE PROVIDES NO PROTECTION!
- Store lawn furniture and other loose, light weight objects, such as garbage cans and garden tools.
- · Garage or store vehicles that are not being used.
- Follow instructions issued by local officials.

### **EVACUATE IMMEDIATELY IF ORDERED TO DO SO!**

# **Final Actions to Take if Leaving**

- · Turn off propane tanks.
- · Unplug small appliances.
- · Empty refrigerator and freezer.
- · Turn off utilities if ordered to do so.
- · Lock home securely.
- · Take pets with you.



# **Final Actions to Take if Staying**

- Close storm shutters.
- Notify family members of your evacuation plans.
- Lower water level in swimming pool by one foot.
- Turn refrigerator or freezer to coldest setting and open only if necessary.
   (25 pounds of dry ice will keep a 10-cubic foot freezer below freezing for 3-4 days.)
- Follow instructions from emergency managers and be prepared to turn off utilities if ordered to do so.
- Board up remaining doors, brace garage door, and remain inside.
   Stay away from boarded up windows.
- Take refuge in a predetermined safe room, such as an interior closet, bathroom, or hallway.
- DO NOT EXPECT EMERGENCY RESPONDERS TO BE OF ANY ASSISTANCE DURING A LANDFALLING HURRICANE!

# **Hurricane Andrew**

# A Look Back at Hurricane Andrew on its 20th Anniversary

On August 24th, 1992, Hurricane Andrew made landfall along the Southeast Florida coast as a category 5 hurricane on the Saffir-Simpson Hurricane Wind Scale (SSHWS). The only other category 5 landfalls for the Continental U.S. on record are Camille (1969) and the 1935 Florida Keys Hurricane. The results were



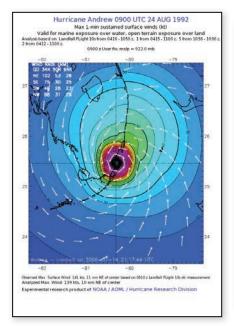
devastating with an estimated 26.5 billion dollars¹ in damage primarily due to extreme winds but also storm surge. This makes Andrew the third most expensive hurricane in U.S. history.¹ Twenty-six people lost their lives as a direct result of the storm.

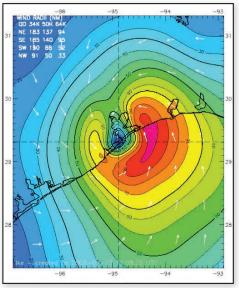


Because Andrew was a relatively small hurricane, the extreme wind and surge impacts were felt mostly in the eyewall which is the ring of maximum winds and surge around the center of the storm (figure 1). Maximum sustained speeds of 165 mph with higher gusts were experienced on the northern side of the eyewall as the hurricane made its SE Florida landfall around 4:30 am that morning. The hurricane then crossed Florida and emerged out over the Gulf of Mexico where it intensified again to a category 4 storm before striking a

relatively sparsely populated portion of the Louisiana coast (figure 2). The storm surge with Andrew was also considerable around the center, with around a 17 foot stormtide along portions of Biscayne Bay which is a record for the southeast Florida Peninsula. The relatively small size of the storm likely prevented and even greater amount of destruction and loss of life as heavily populated areas including downtown Miami, Key Biscayne and Fort Lauderdale were located just north of the zone of the most destructive winds.

# **Hurricane Andrew**





Comparing lke to Andrew, lke's maximum wind speeds were much lower, but lke was a much larger storm (figure 3). As a result, the degree of maximum wind damage was less for lke, but the area covered by hurricane force winds and the area covered by storm surge was far greater. While surge impacts were primarily close to the storm with Andrew, they extended over most of the Gulf Coast with lke (see page 5). Because of this larger footprint, the damage amounts associated with lke were actually greater, an estimated 29.5 billion, making lke the second costliest hurricane on record behind only Hurricane Katrina.

<sup>&</sup>lt;sup>1</sup> Eric S. Blake et al., The Deadliest, Costliest and Most Intense United States Tropical Cyclones from 1851 to 2010 (and Other Frequently Requested Hurricane Facts), NOAA Tech. Memo., August 2011

<sup>&</sup>lt;sup>2</sup> Max Mayfield et al., 1994: Atlantic Hurricane Season of 1992. Mon. Wea. Rev., 122, 517-538.

# **Hurricane Surf & Rip Currents**

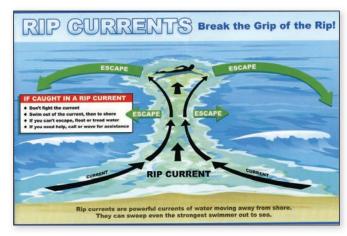
### **Hurricane Surf**



Along with big surf come strong rip currents. Rip currents are the leading surf hazard for all beach goers and result in over 100 drownings every year in the United States. The strength and size of rip currents are related to the size of the surf and wave period. Rip currents typically form at the low spots in the surf, at the breaks in the sandbars, and near jetties and piers.

# **Rip Currents**

If caught in a rip current, don't panic, but swim parallel to the shore. The current is usually only about 50 feet wide and you should be able to swim out of it. At that point, you can swim back to shore. If you are still unable to reach the shore, draw attention to yourself: face the shore, wave your arms, and yell for help.



# **Student Information Checklist**

- Assure that all contact information and emergency contact information is accurate with your campus's registrar's office.
- If your campus offers an emergency management communication system, register as a user of the system.
- Plan your method of evacuation and your destination before a storm enters the gulf.
- Monitor local radio and TV stations for updates.
- Contact your campus Student Affairs Office if you need assistance with evacuation.
- If you require any assistance due to a disability-related accommodation, please contact your campus Disability Services Office to make necessary arrangements.
- · Communicate with your family regarding status and location
- If your campus is evacuating, you will not be allowed to remain on-campus and it is highly recommended that you leave the city. Do not go to a coastal location.
- Take your driver's license, student I.D. card, and a copy of your housing lease as well as medical insurance cards and other important documents when you evacuate.
- If you bank with a local bank or credit union whose infrastructure may be damaged by the storm, withdraw some funds as you may not have access to them once you leave the area.
- International students must take passports with US student visa inside, I-20, I-94, student I.D. and class schedule.
- If using personal transportation, take as many of your valuable or irreplaceable items as you are able.
- If driving, make sure all roads that you are driving are open and safe. You can call the Department of Transportation at 1-800-452-9292 or check on-line for conditions at www.txdot.gov
- Follow baggage limits if participating in an assisted evacuation program.
- Take a 30-day supply of medications in original pharmacy containers.
- Make a record of any valuables left behind (description, serial numbers, etc). Take pictures of all belongings.
- If you are evacuating to a shelter, make appropriate arrangements for pets. Most shelters do not accept pets.
- Do not plan to return to campus until an all-clear is given (monitor media and campus web-site).

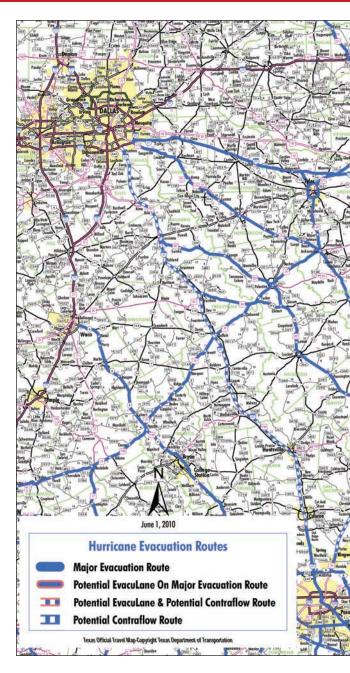
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# **Evacuation Routes**

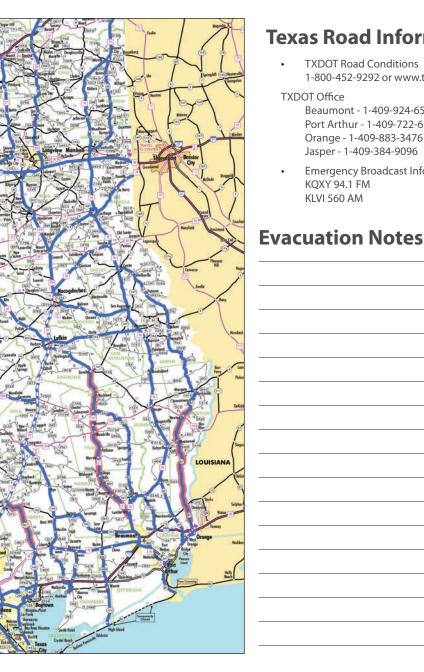
Evacuees need to consider the projected path of the hurricane when choosing an evacuation route and destination. When evacuating, be sure to check local weather and highway conditions before departing. When local authorities order an evacuation of your area, leave immediately!

# Final Actions before Evacuating

- Follow evacuation orders provided by your local officials. Once the evacuation order has been given, LEAVE IMMEDIATELY!
- Take your Hurricane Supply Kit with you.
- Leave as early as possible to avoid heavy traffic and hazardous weather.
- Do not stay in a mobile home near the coast under any circumstance.
- Remember that large boats and travel trailers may not be allowed to cross local bridges and causeways once high winds commence.
- Prepare to stay at your evacuation destination for a week or more, as re-entry into the affected area may be restricted.



# **Evacuation Routes**



# **Texas Road Information**

**TXDOT Road Conditions** 1-800-452-9292 or www.txdot.gov

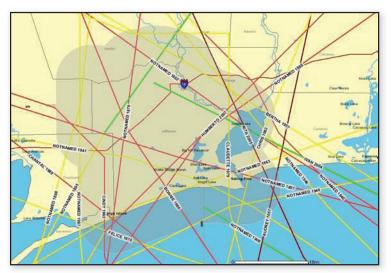
### **TXDOT Office**

Beaumont - 1-409-924-6521 Port Arthur - 1-409-722-6521 Orange - 1-409-883-3476 Jasper - 1-409-384-9096

**Emergency Broadcast Information** KOXY 94.1 FM KI VI 560 AM

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# **Hurricane History**



Above: The graphic above shows the center of every tropical cyclone moving through Jefferson County since 1851. Please note that tropical cyclones can affect regions hundreds of miles away from the center landfall.

# Hurricane Ike: September 12-13, 2008.

Very large category two hurricane that made landfall at Galveston Texas. Hurricane force winds were recorded over most of Southeast Texas. However, lke will be remembered for the record storm surge values (NAVD 88) from 14 feet near Sabine Pass with 11 to 12 feet across Sabine Lake, flooding portions of Bridge City and Orange. Port Arthur was spared the storm surge thanks to its 14-17 foot seawall. However, the remaining southern half of Jefferson county was inundated, with estimated high water marks reaching 18 to just over 19 feet to the south and east of High Island. This is the worst storm surge flooding recorded across this region during the last 150+ years of record keeping.

# Hurricane Humberto: September 12-13, 2007.

Very small category one hurricane that made landfall between High Island and Sea Rim State Park in Jefferson county, Texas. Due to the small size, storm surge values were 4 to 5 feet across Jefferson county, 3 to 4 feet across Sabine Lake.

# **Hurricane History**

# Hurricane Rita: September 23-24, 2005.

Very large category three hurricane that made landfall between Johnson's Bayou and Sabine Pass, affecting the entire Louisiana and Southeast Texas coasts. Hurricane force winds were recorded from Jasper, Kountze, and High Island, Texas eastward into Louisiana. Storm surge values 8 to 10 feet (NAVD 88) across eastern Jefferson and Orange counties in Southeast Texas.

# **Tropical Storm Frances: September 9-12, 1998.**

Very large tropical storm that made landfall across the Central Texas coast, but the circulation covering the entire northwestern Gulf of Mexico. Every road in Sabine Pass was under water, except Highway 87 right in front of the school. Highway 87 flooded south of Port Arthur to Sabine Pass, and north of Port Arthur to Bridge City. Many locations further inland across western Jefferson county was also under water. The extensive flooding was due to tides running between 3½ to near 5 feet for 2½ days.

# Hurricane Chantal: August 1, 1989, Hurricane Jerry: October 15, 1989.

Very small category one hurricanes that made landfall at High Island and Galveston respectively. Storm surge values were 4-5 feet across Jefferson County.

# Hurricane Bonnie: June 26, 1986.

Very small category one hurricane that made landfall between High Island and Sea Rim State Park in Jefferson County. Storm surge values were 6-7 feet across Jefferson county

# Hurricane Alicia: August 17-18, 1983.

Small Category three hurricane that made landfall across the Upper Texas coast just southwest of Galveston near Freeport. Storm surge values were just over 5 feet at Sabine Pass with higher values likely across Coastal Western Jefferson county.

# Hurricane Carla: September 10-12, 1961.

Extremely large category four hurricane (circulation covered the entire Gulf of Mexico at one point) made landfall across the Central Texas coast. Due to the large size of the storm, storm surge values of 7 to 8 feet were common across coastal Jefferson and Orange Counties.

# Hurricane Audrey: June 26-27, 1957.

Very large category four hurricane, with a 40 mile wide eye, made landfall from Sabine Pass to Cameron. Audrey affected the entire Louisiana and Southeast Texas coasts. Storm surge values of 8 to 10 feet were recorded across Eastern Jefferson and Orange Counties in Southeast Texas.

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# **Returning Home**

IF YOU EVACUATED THE AREA, WAIT FOR AN ALL CLEAR FROM THE CITY OR COUNTY BEFORE ATTEMPTING TO RETURN TO YOUR HOME. BE PREPARED TO SHOW PROOF OF RESIDENCE BY HAVING A COPY OF YOUR LATEST UTILITY BILL.

# **Debris Cleanup**

- Cities and counties will publish a schedule for debris pick-up and removal. Debris cannot be removed from private property.
- Construction materials, vegetative debris, household hazardous waste and household appliances will need to be placed into separate piles and moved to the curbside for pick-up.



# **General Cleanup**

- Be cautious of structural damage and downed power lines. Do not attempt to move structural supports or large pieces of debris.
- DO NOT run power generators indoors. Inhalation of carbon monoxide from the exhaust can cause death. Ensure exhaust is well ventilated.
- DO NOT use open flames indoors.
- Restrict your driving to emergency use only. Road conditions may not be safe until road debris is cleared.

### Water

- Listen for instructions regarding public water supply. Use only bottled, boiled or treated water until you know that your water supply is safe.
- You can use household chlorine bleach to treat water for drinking or cleaning. Add 1/8
  teaspoon of bleach per gallon of clear water or 1/4 teaspoon of bleach per gallon if water is
  cloudy. Allow water to stand for 30 minutes before using.

# **Interior Cleanup**

- Disinfect and dry interior buildings and items inside. This will prevent growth of some bacteria, viruses, mold, and mildew that can cause illness.
- Clean walls, floors, and counter tops with soap and water. Disinfect them with a solution of 1 cup of bleach to 5 gallons of water.
- Wash all clothes and linens in hot water. Air dry and spray all unwashable items with disinfectant. Steam clean carpets. Throw away all items touched by water that cannot be disinfected.

# **Returning Home**

# **Utility Cleanup**

- Check for gas leaks. If you smell or hear gas leaking, leave immediately.
   DO NOT use the phone or turn on lights in your home. Call the gas company from a neighbor's phone.
- Report any visible damage of power lines to the electric company. Turn off power at main breaker if any electrical equipment or circuits have been exposed to water.
- DO NOT connect generators to your home's electrical circuits. If a generator is on line when electrical service is restored, it can become a major fire hazard. Also, line workers working to restore power will be endangered if a generator is hooked up to the home's circuits.



• It is likely that an electric company other than your own will reconnect the lines to your home; however, they cannot turn the service back on. Only your electric company can actually turn the power back on to your house.

# **Sewage Cleanup**

- If you suspect water or sewage lines are damaged, do not use your plumbing (toilets, sinks, etc.). Contact the water company or a plumber for repairs.
- A chemical portable commode can be created by the following:
  - Use 5 gallon buckets with tight lids, lined with heavy duty plastic garbage bags.
  - Add kitty litter to the bucket as a disinfectant and deodorizer. Keep lids on firmly.
  - Keep buckets in a cool, dark place. Clean and disinfect buckets immediately.
- Your toilet can also be used by flushing until the bowl has no water. Then, line with heavy
  duty trash bags and disinfect with chlorine bleach after each use. Remove waste to an outside
  location.
- If significant sewer outages have occurred, instructions for disposal of human wastes will be announced.
- DO NOT dispose of human waste through your regular trash!

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# **Emergency Information**

### NATIONAL WEATHER SERVICE LAKE CHARLES

· 337-477-5285 - www.weather.gov/lakecharles

### NATIONAL FLOOD INSURANCE PROGRAM

• 888-379-9531 - www.floodsmart.gov

### NATIONAL HURRICANE CENTER

· www.nhc.noaa.gov

### FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

800-621-FEMA - www.fema.gov

# **Community Resource Information:**

**Do Not Call 911 for Non-Emergencies!** 

### TEXAS GOVERNOR'S DIVISION OF EMERGENCY MANAGEMENT

512-424-2138 - www.txdps.state.tx.us/dem/index.htm

### **TEXAS ROAD CONDITIONS**

800-452-9292 - http://apps.dot.state.tx.us/travel/road\_conditions2.htm

### **AMERICAN RED CROSS - BEAUMONT CHAPTER**

409-832-1644 - www.redcrossbeaumont.org

### AMERICAN RED CROSS - ORANGE CHAPTER

409-883-2322 - www.redcrossorange.org

# **Texas County Contacts:**

### **JEFFERSON**

409-835-5787 - www.co.jefferson.tx.us/em.htm

### ORANGE

409-882-7895 - www.co.orange.tx.us/

### **JASPER**

409-994-2543 - www.co.jasper.tx.us/

### **NEWTON**

409-379-5691 www.co.newton.tx.us/

### **TYLER**

409-283-5411 www.co.tyler.tx.us/

### **HARDIN**

409-246-5119 www.co.hardin.tx.us/

# **Emergency Notes**

# **Hurricane Hunters**

When a hurricane threatens the United States, or islands around the Caribbean Sea, the 53<sup>rd</sup> Weather Reconnaissance Squadron, known as the Hurricane Hunters of the Air Force Reserve, begin flying into the storm. These brave men and women fly 14 hour missions, slicing through the eyewall of the hurricane, buffeted by howling winds, blinding rain, hail, and violent updrafts and downdrafts, to collect data critical to hurricane forecasting.



The Hurricane Hunters are based out of Keesler Air Force Base in Biloxi, Mississippi and fly in an aircraft called the WC-

130J, which is the newest generation of the C-130 Hercules flown by the U.S. Military. These planes are capable of operating in very rough conditions, including hurricanes. Safety is their primary concern. Although there is always a risk associated with aviation, the hurricane hunters pride themselves on the fact that they have flown over 100,000 hours without a mishap.

Crew onboard the aircraft deploy special instruments called GPS (Global Positioning System) drop wind sondes in the eye of the storm. These instruments fall to the ocean surface and provide a detailed look at the structure of the storm by measuring the pressure, humidity, temperature, and wind speed and direction. The data collected is relayed to specialists at the National Hurricane Center in real time, and is then ingested into computer models to help forecasters make accurate predictions on the storms track and intensity.



NOAA also has a series of aircraft that fly both research and operational missions into hurricanes, including the Lockheed WP-3D Orion, Gulfstream IV-SP, and several smaller propeller aircraft. These planes are equipped with more advanced instruments that include onboard dopper radar.

The U.S. Air Force has been flying missions into Hurricanes since WWII. NOAA pilots have flown into hurricanes since 1975. Information gathered from the

Hurricane Hunters helps to improve forecasts by as much as 30% and directly contributes to the safety of Americans living along the vulnerable Atlantic and Gulf coasts.



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Southeast Texas Regional Planning Commission

For up-to-date emergency information, go to setinfo.org For information and referral to local resources, dial 211 If you have no means to evacuate, dial 211 to register for a ride out





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